ROBNOR RESINS

DATASHEET FOR ROBNOR EPOXY

PX314ZG

This material is a general purpose, cold curing flame retardant encapsulating resin. The system is similar to the very popular PX314R but uses a different hardener not subject to moisture inhibition. This means that a high level of cure can be achieved under cold, damp conditions even where small shot sizes are used.

PX314ZG is a relatively low viscosity, flame retardant casting resin which has been specifically formulated for use in the electronics industry where components are required to meet BS415. The cured product is approved to UL94V-0

METHOD OF USE

Twinpacks

Twinpacks contain evacuated resin and are ready for use immediately after mixing. See separate mixing instructions.

Bulk Material

The resin has been formulated to minimise sedimentation. Any sediment which may have occurred resulting from long time storage should be dispersed either by rolling the can or stirring with a broad bladed spatula. This operation should be carried out, if necessary, BEFORE removal of any material from the can. Long-term sedimentation will be aggravated by storage at high temperatures and this should be avoided.

The resin is supplied after being evacuated and care should be taken when mixing with hardener not to stir in large amounts of air. If this is unavoidable, the mixed resin and hardener should be re-evacuated before use.

Mixing and dispensing machinery is available from Robnor Resins which will mix resin and hardener in the correct proportions without any risk of introducing entrapped air.

Kits

In kit form, resin and hardener are provided in separate containers to the correct ratio. In most cases, mixing is effected by simply pouring the hardener into the resin can which is then used as the mixing vessel.

Note: Incomplete mixing will be characterised by erratic or even partially incomplete curing of material even after extended time periods.

Data sheet for Robnor Epoxy PX314ZG

Characteristics of Resin: RX314ZG

Property	Value	Unit	Standard
Colour	Black	—	RTM : 10
Specific Gravity	1.85 ± 0.02	—	RTM : 3
Viscosity	60000 ± 20000	mPa.s	RTM : 8

Characteristics of Hardener: HX314ZG

Property	Value	Unit	Standard
Colour	Brown	—	RTM : 10
Specific Gravity	1.15 ± 0.02	—	RTM : 5
Viscosity	1200 - 2000	mPa.s	RTM : 8

Characteristics of Mixed System: PX314ZG

Property	Value	Unit	Standard
Colour	Black	—	RTM : 10
Specific Gravity	1.73 ± 0.02	—	RTM : 3
Viscosity	11500	mPa.s	RTM : 8
Mix Ratio by Weight	8.6 : 1	—	—
Mix Ratio by Volume	5.3 : 1	—	—
Usable Life	60	min	RTM : 46
Cure Schedule *	24	h	—

* Cold (Room Temperature) Cure

Minimum Cure

24 hrs @ 25°C
or 2 hrs @ 60°C
or 1 hr @ 80°C

Full Cure

48 hrs @ 25°C
or 8 hrs @ 40°C
or 2 hrs @ 80°C

Data sheet for Robnor Epoxy PX314ZG

Chemical Characteristics:

Property	Value	Unit	Standard
Water Absorption (7 days @ 20°C) (1 hr @ 60°C)	 0.5 1.1	 % %	 RTM : 26 RTM : 26
Oxygen Index	32	%	RTM : 27
Flammability	UL94V-0	—	RTM : 28
Chemical Resistance	High	—	RTM : 29

Physical Characteristics

Property	Value	Unit	Standard
Shore Hardness	D/1:88 - D/15:85	—	RTM : 18
Heat Deflection Temperature	50	°C	RTM : 30
Operating Temperature	- 40 to + 115 Continuous - 40 to + 130 short term	°C	RTM : 24
Thermal Conductivity	0.38	W/mK	RTM : 31
Tensile Strength	55 - 59	MPa	RTM : 32
Elongation at Break	Low	—	RTM : 41
Compressive Yield Strength	79 - 86	MPa	RTM : 33
Tear Resistance	Low	—	RTM : 42
Lap Shear Strength	Medium	—	RTM : 21
Shrinkage	Low	—	RTM : 25
Coefficient Linear Expansion	Low	—	RTM : 35

Data sheet for Robnor Epoxy PX314ZG

Electrical Characteristics

Property	Value	Unit	Standard
Volume Resistivity	12 - 14	Log_{10}ohmm	RTM : 36
Electric Strength (3.0mm @ 20°C)	10	MV/m	RTM : 38
Permittivity (∈) (50 Hz, 3.0mm @ 23°C)	4	—	RTM : 39
Loss Tangent (Tanδ) (50 Hz, 3.0mm @ 23°C)	0.045	—	RTM : 40
Continuous Tracking Index	> 850	V	RTM : 44
Tracking Time/Voltage	200/3.25	min/kV	RTM : 45

All measurements are at 25°C and have tolerance of ± 20% unless stated otherwise

N.B. These results do not constitute a specification and are quoted for guidance use only. The information given is derived from test and/or extrapolations believed to be reliable However, the product is offered for evaluation on the understanding that the customer will satisfy himself that the product is suitable for his intended use. Details of Robnor Test Methods (RTM) available upon request.

Specifications:

Customers are advised to consult our Material Specification for this product prior to use, to verify the acceptance criteria.

Cleaning Equipment

All equipment should be cleaned before the compound has hardened. Robnor Resins TS130 is a suitable non-flammable cleaning agent, although other solvents may be found suitable.

TS130 is also suitable for removing cured resins - data available on request.

Data sheet for Robnor Epoxy PX314ZG

Storage of Bulk Resin and Hardener

Some epoxy resins are Hygroscopic and absorption of moisture will effect reactivity and physical properties of the resulting polymer. Therefore the material should be stored in sealed dry containers. Once opened, the resin and hardener can be protected from atmospheric moisture by purging with dry Nitrogen gas - purging grade (available from British Oxygen Co.) Alternately desiccant traps can be used to dry the incoming air.

Cold temperatures between 7 and 10°C - can be used to lessen any separation of resin ingredients, however, care , must be taken to prevent condensation by allowing contents to return to ambient temperature prior to opening containers. The preferred storage temperature is between 10 and 20°C.

Under these storage conditions the shelf life of the resin is 12 months and the hardener is 12 months.

Handling Precautions

Epoxy systems may cause sensitisation by "skin contact" and may be corrosive, harmful or toxic. It is therefore advisable that skin and eye contact are avoided by using appropriate personal protective equipment. Adequate ventilation of the working area is recommended. However, where vapour levels are likely to be above occupational exposure limits, or discomfort is experienced, appropriate respiratory protection should be worn.

It is essential that the specific hazards of the system being used are known before handling any material supplied by Robnor. Users should familiarise themselves with the Health and Safety information provided by the Company both in written correspondence and in the information sources listed below.

- The labels on the product packages and containers
- The product Health and Safety Data Sheet

Robnor Resins, Hunts Rise, South Marston Park, Swindon, Wilts. SN3 4TE
Tel: 01793 823741 Fax: 01793 827033